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INDIANA COLLECTION

Schools

ABSTRACT OF THE REPORT OF INDIANA PUBLIC SCHOOL DROPOUT PREDICTION STUDY

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It has become increasingly clear that the event of high school graduation or its equivalent has its greatest personal impact on an individual who either chooses or is chosen to forego the requirements for graduation. Whatever his reason, the high school dropout soon finds he lacks the key to the door of successful employment or advancement. He is sometimes also accused of holding a key to the doors of delinquency, welfare assistance, and costly social programs for job retraining, unemployment compensation, and "agency" assistance. In this nation geared to technology, employers view high school graduation as the acquisition of a certain skill. That skill may be the ability to stay with a task until it is completed or it may reflect human relations skill in getting along with older adults and age mates. Whatever the employer infers from successful completion of high school, he negatively suspects of those who drop out.

Recent history has shown that the holding power of our nation's schools has increased and that fewer dropouts occur each year. This small group is, however, finding it more difficult to achieve success in most life ventures. This difficulty may have its roots in the early years of the child's life and may relate to home training and early school failure experiences. Information from Indiana school attendance data shows that an approximate 23% holdover of students occurs in the first three school grades. This suggests that for some students failure is experienced during either the first, second or third encounter with the formal learning process.

All too often the identification and assistance of the potential school leaver is delayed until the secondary school years or even following the dropping-out act. The literature is replete with studies on students who drop out of school but few of them provide ways of identifying or working with students in the primary grades who may be potential dropouts. The research that has been conducted yields a vast number of characteristics that may relate to students' early departure from school. What is needed is a method for determining whether the characteristics most often identified among dropouts are present in the early school records of all students and whether those students who dropped out showed different early school characteristics from their graduating counterparts.

Abstracted from an original report prepared for distribution by the Indiana State Superintendent of Public Instruction, John J. Loughlin.

THE STUDY

This abstracted report is from a study, supported by the Indiana Department of Public Instruction, that attempted to secure information which might provide answers to the following research questions:

(1) Do dropouts and graduates in Indiana differ in any characteristic manner?
(2) Is it possible to find these characteristics in the cumulative records of students in the primary grades?
(3) Is there any single characteristic or combination of characteristics that best differentiate dropouts from persisters?
(4) Are these characteristics different in school systems with small, medium, and large size student populations?
(5) Are these characteristics different in school systems with low, medium and high assessed valuation per child?
(6) Can a screening table be developed to help local school officials predict at an early age which of their children may become dropouts?
(7) Are there types of programs or procedures that might help schools be more successful in meeting the needs of these children, once identified?

A random sampling from the 304 school systems in Indiana produced twenty school systems that volunteered to provide data for the study. Operationally, these participative systems represented 6.6% of the school districts and contained 7.5% of the student population of the state. This was within the range suggested for the study. Each system was instructed to complete twenty-item biographical questionnaires from information in the cumulative records of a random fifty graduates and fifty dropouts. Prior to data analysis, the completed returns were inspected and those characteristics not having at least seventy-five percent response were discarded and not used in the analysis. The thinking here was that at least seventy-five percent of the schools in the study should routinely record the student data for it to be effective in later prediction work.

Stepwise multiple discriminant analysis as well as analysis utilizing the intra and inter-variable Chi square value relationships were used to determine the characteristics and combination of characteristics that best differentiated the original graduate and dropout sample groups. Two dimensional *Dropout Screening Tables* were produced from the analysis and represent the most efficient prediction scheme using the data from the representative school districts.

RESULTS

The following *Dropout Screening Tables* have varying numbers of predictors, but the levels of each predictor correspond to a positive, neutral, or negative score located on the left margin of the *Table*. To use the table with an individual's data, one would first determine the score for each predictor variable (column) and place it in the blank space beneath that corresponding column. When scores (negative, neutral, or positive) have been assigned to all columns their algebraic sum is computed and placed in *total*. This forms the predictor score and if it is negative (—1 through —20) the individual would be identified as a potential dropout. A postive algebraic

sum ($^{+}1$ through $^{+}24$) would be characteristic of a potential graduate. The following example demonstrates the use of a *Dropout Screening Table:*

From the records of an hypothetical fourth grade student the following is computed —

1.	Grade average = C	$= {}^{+}1$
2.	Peer acceptance = tolerated	$= -2$
3.	Mental ability, I.Q. = $^{+}.5$ standard deviation	$= {}^{+}1$
4.	Mother's education = grade 9	$= -1$
5.	Father's education = grade 9	$= 0$
6.	Father' occupation = semi-skilled	$= 0$
	Algebraic Total	$= -1$

This student would be predicted as a dropout because of the negative algebraic total.

DROPOUT SCREENING TABLES

SCREENING TABLE DEVELOPED FROM THE 1-1999 STUDENT POPULATION SUB-SAMPLE

SCORE	PREDICTOR VARIABLES					
	Scholastic Record	Peer Acceptance	Mental Ability I.Q.	Mother's Education	Father's Education	Father's Occupation
+5	A & B	Sought Out				
+4				College	College	
+3			Above +1 Standard Deviation	Vocational or Business		Professional, Technical or Managerial
+2					Vocational or Business	
+1	C		$\bar{X}$ to +1 Standard Deviation	High School Graduate		Sales, Merchandising, Accounting, Clerical
0		Accepted			Grade 9 to High School Grad.	Skilled, Semi-Skilled, Service or Farming
−1			$\bar{X}$ to −1 Standard Deviation	Grade 9		
−2	D	Tolerated			Grade 8 or Below	Unskilled or Unemployed
−3				Grade 8 or Below		
−4		Avoided	Below −1 Standard Deviation			
−5	F					
↘		+	+	+	+	+ = TOTAL

SCREENING TABLE DEVELOPED FROM THE 2000-3999 STUDENT POPULATION SUB-SAMPLE

SCORE	PREDICTOR VARIABLES					
	Scholastic Record	Peer Acceptance	Mental Ability I.Q.	Mother's Education	Father's Education	Father's Occupation
+5	A & B	Sought Out				
+4				College	College	
+3			Above +1 Standard Deviation	Vocational or Business		Professional, Technical or Managerial
+2					Vocational or Business	
+1	C		$\bar{X}$ to +1 Standard Deviation	High School Graduate		Sales, Merchandising, Accounting, Clerical
0		Accepted			Grade 9 to High School Grad.	Skilled, Semi-Skilled, Service or Farming
−1			$\bar{X}$ to −1 Standard Deviation	Grade 9		
−2	D	Tolerated			Grade 8 or Below	Unskilled or Unemployed
−3				Grade 8 or Below		
−4		Avoided	Below −1 Standard Deviation			
−5	F					
↘		+	+	+	+	+ = TOTAL

SCREENING TABLE DEVELOPED FROM THE 4000 AND LARGER STUDENT POPULATION SUB-SAMPLE

SCORE	PREDICTOR VARIABLES			
	Scholastic Record	Peer Acceptance	Mental Ability I.Q.	Mother's Education
+5	A & B	Sought Out		
+4				College
+3			Above +1 Standard Deviation	Vocational or Business
+2				
+1	C		$\bar{X}$ to +1 Standard Deviation	High School Graduate
0		Accepted		
−1			$\bar{X}$ to −1 Standard Deviation	Grade 9
−2	D	Tolerated		
−3				Grade 8 or Below
−4		Avoided	Below −1 Standard Deviation	
−5	F			
↘		+	+	+ = TOTAL

SCREENING TABLE
DEVELOPED FROM THE $7,999 OR LESS ASSESSED VALUATION SUB-SAMPLE

SCORE	PREDICTOR VARIABLES Scholastic Record	Peer Acceptance	Mental Ability I.Q.	Mother's Education
+5	A & B	Sought Out		
+4				College
+3			Above +1 Standard Deviation	Vocational or Business
+2				
+1	C		$\bar{x}$ to +1 Standard Deviation	High School Graduate
0		Accepted		
−1			$\bar{x}$ to −1 Standard Deviation	Grade 9
−2	D	Tolerated		
−3				Grade 8 or Below
−4		Avoided	Below −1 Standard Deviation	
−5	F			

↘ + + + = _____ TOTAL

SCREENING TABLE
DEVELOPED FROM THE $8,000 TO $9,499 ASSESSED VALUATION SUB-SAMPLE

SCORE	PREDICTOR VARIABLES Scholastic Record	Mental Ability I.Q.	Mother's Education
+5	A & B		
+4			College
+3		Above +1 Standard Deviation	Vocational or Business
+2			
+1	C	$\bar{x}$ to +1 Standard Deviation	High School Graduate
0			
−1		$\bar{x}$ to −1 Standard Deviation	Grade 9
−2	D		
−3			Grade 8 or Below
−4		Below −1 Standard Deviation	
−5	F		

↘ + + = _____ TOTAL

SCREENING TABLE DEVELOPED FROM THE $9,500 TO $11,499 ASSESSED VALUATION SUB-SAMPLE

SCORE	PREDICTOR VARIABLES Scholastic Record	Peer Acceptance	Mental Ability I.Q.	Mother's Education	Father's Education	Father's Occupation	No. of Siblings
+5	A & B	Sought Out					
+4				College	College		
+3			Above +1 Standard Deviation	Vocational or Business		Professional, Technical or Managerial	
+2					Vocational or Business		
+1	C		$\bar{x}$ to +1 Standard Deviation	High School Graduate		Sales, Merchandising, Accounting, Clerical	
0		Accepted			Grade 9 to H. S. Grad.	Skilled, Semi-Skilled, Service or Farming	0 - 5
−1			$\bar{x}$ to −1 Standard Deviation	Grade 9			7 or More
−2	D	Tolerated			Grade 8 or Below	Unskilled or Unemployed	
−3				Grade 8 or Below			6
−4		Avoided	Below −1 Standard Deviation				
−5	F						

↘ + + + + + + = _____ TOTAL

SCREENING TABLE DEVELOPED FROM THE $11,500 OR MORE ASSESSED VALUATION SUB-SAMPLE

SCORE	PREDICTOR VARIABLES Scholastic Record	Peer Acceptance	Mental Ability I.Q.	Mother's Education	Father's Education
+5	A & B	Sought Out			
+4				College	College
+3			Above +1 Standard Deviation	Vocational or Business	
+2					Vocational or Business
+1	C		$\bar{x}$ to +1 Standard Deviation	High School Graduate	
0		Accepted			Grade 9 to High School Grad.
−1			$\bar{x}$ to −1 Standard Deviation	Grade 9	
−2	D	Tolerated			Grade 8 or Below
−3				Grade 8 or Below	
−4		Avoided	Below −1 Standard Deviation		
−5	F				

↘ + + + + = _____ TOTAL

DISCUSSION

Four elements in a grade-school child's life seem to offer the best clew to whether he can be predicted to finish his education through high school or be predicted a dropout. The four critical factors are the child's scholastic record, the degree to which his classmates accept him, his tested mental ability, and the educational level his mother achieved in school. Two added factors — the father's occupation and educational level add to the indicator group in some school systems.

If students who dropout are the ones who are in need of opportunities for success experiences, perhaps the ungraded primary could provide a partial answer as an approach. A curriculum with skill development in social relationships as an integral part may also help. Peer tutoring of younger children by older elementary children could assist both academic and social skill development. The development and continuation of strong parental involvement programs with the school are suggested to narrow the communication gap. Career education in the early grades could improve the relevance of education. The elementary school counselor might be the appropriate individual to see that suggested programs are carried out in the school as a buffer to dropouts.